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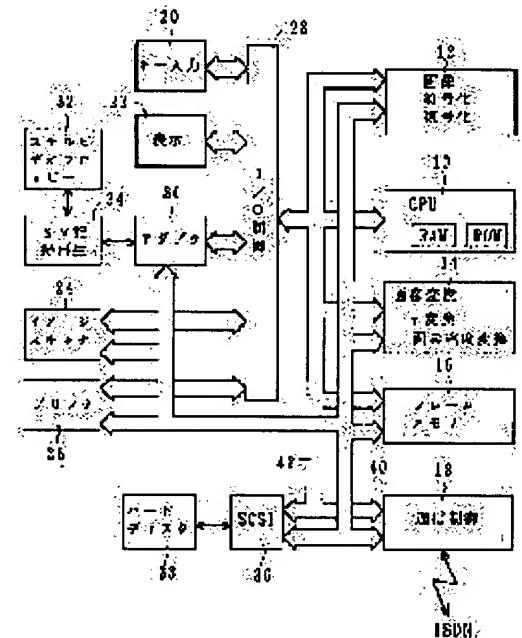
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## (54) PICTURE TRANSMITTER

### (57) Abstract:

**PURPOSE:** To attain transmission reception of a reproduced picture SV and a scanner picture in one communication by designating a picture source in the unit of documents and pages to a part before picture information to be sent in the picture transmission control procedure.

**CONSTITUTION:** A communication control circuit 18 sets up a line with a communication opposite party and uses a transmission control procedure to inform it to a receiver side that a reproduced picture SV from a still video floppy is included in a transmission picture based on a parameter NSC in a session start command CSS. The receiver side informs the reception enable state to the sender side by using a session start affirmative response RSSP. The sender side adds a parameter representing a picture size, a color space and the coding system to a command CDCL sent for each document and sends the resulting command to the receiver side and the receiver side informs a format set by its own equipment to the sender side. Thus, the transmission reception of the picture SV and the scanner picture are attained in one communication by designating a picture source in the unit of documents before picture information to be sent in this way.



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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]****[0001]**

[Industrial Application] this invention -- picture transmission equipment -- being related -- more -- concrete -- facsimile and a tape recorder -- it is related with the picture transmission equipment called a pier.

**[0002]**

[Description of the Prior Art] Facsimile modulates the manuscript image read with the Rhine scanner by the predetermined modulation technique, and transmits it to a remote place through communication lines, such as a dial-up line. It gets over by the receiving side and a receiving image is printed on a form with a hot printing method or an electrophotography method. By the conventional facsimile, although these processings were serially performed by the target, remaining as it is, or the configuration which is modulated and is stored temporarily at storage and the product which a modulating signal as [ a modulating signal ] or gets over and stores the image information which received temporarily at storage is commercialized by large-capacity-izing and low-pricing of semiconductor memory or a hard disk in the image information read with the scanner at the time of transmission.

[0003] Moreover, a means, for example, an electronic "still" camera, to electronize an image besides the Rhine scanner, and an image scanner are put in practical use, it comes to be provided cheaply, and various kinds of edit processings can be further realized now easily on a computer. In addition, a dismountable thing is also commercialized in a disk part by the magneto-optic disk and the small hard disk, and the information storage medium in which very mass carrying is possible can use now easily.

[0004] The facsimile apparatus which unified external storage, such as a record regenerative apparatus of the still video floppy which is the image recording medium of an electronic "still" camera, drive equipment of the usual floppy disk, and reading write-in equipment of memory card, under such a situation is proposed and put in practical use. However, as for the Rhine scanner (or image scanner) for carrying out image reading of the manuscript also with the facsimile apparatus which has external storage, providing is common. That is, it has the two image sources.

[0005] In the facsimile apparatus which added such external storage, even when it had the external storage (for example, record regenerative apparatus of a still video floppy) with which a transmitting side and a receiving side are congenital, or compatibility is in an image storage method, image information was changed and transmitted to the image of scanner reading of the former, and the image of the same property. For example, in the case of the playback image (henceforth SV image) of a still video floppy, SV image was changed into the RGB code of a scanner property from the RGB code of an NTSC property, the pixel consistency was changed so that it might become the same number of pixels as the reading resolution of a scanner after an appropriate time, and it encoded like the image (henceforth a scanner image) read with the scanner, and had transmitted. In a receiving side, inverse transformation of the pixel consistency is carried out, and it changes into SV image property from a scanner property, and records on a record medium.

**[0006]**

[Problem(s) to be Solved by the Invention] In the conventional example, even if it had two or more image sources in this way, within 1 communication link, there was a fault that only the image from the one image source could be transmitted. Moreover, in the output of a receiving image, there was a fault that only hard copy by printer equipment was made.

[0007] This invention aims at showing the picture transmission equipment which cancels such un-arranging.

[0008]

[Means for Solving the Problem] The picture transmission equipment concerning this invention specifies the image source of a transmission image in the communication capability exchange procedure of a picture transmission control procedure. Furthermore, in advance of the image information to transmit, the image source is specified per page. In a receiving side, an output unit is matched for every image source.

[0009]

[Function] With the above-mentioned means, a transmission gestalt can be specified namely, changed per a document unit and page. Thereby, the playback image from for example, a still video floppy and the image read by the image scanner can be transmitted now within 1 communication link. It is not limited to the hard copy by the printer as an output unit, but record in a still video floppy is also attained.

[0010]

[Example] Hereafter, the example of this invention is explained with reference to a drawing.

[0011] Drawing 1 shows the outline configuration block Fig. of one example of this invention. The image coding decryption circuit which CPU by which 10 controls the whole, and 12 encode the image which should be transmitted, and decodes the received coded-image signal, and 14 Conversion in the RGB image of a CMYK image and its inverse transformation (gamma conversion), conversion in the RGB image of the scanner property of the RGB image of an NTSC property, and its inverse transformation, It is the image transformation circuit which performs conversion in a binary image from a multiple-value image etc. in the pixel consistency conversion for image size change etc., the conversion in monochrome image from a color picture, and a list.

[0012] The frame memory by which 16 is used for image transformation processing of the image transformation circuit 14 at coding and the decryption processing list by the image coding decryption circuit 12, and 18 are communication lines, for example, the communications control circuit which controls connection with ISDN.

[0013] Key input equipment for a user to input various kinds of directions, as for 20, the indicating equipment with which 22 displays various kinds of information, such as paper nothing, an ink piece, and a communication link situation, the image scanner to which 24 carries out image reading of the manuscript, and 26 are printers which carry out the printout of a receiving image, the report of a communication link situation, etc., and, directly, these are controlled by the I/O-hardware-control circuit 28. The record regenerative apparatus 34 of the still video floppy 32 connects with the I/O-hardware-control circuit 28 through an adapter 30 again.

[0014] 36 is a well-known SCSI interface and 38 is a hard disk.

[0015] 40 is an image data bus only for image data, and a control bus for system controls in 42, the image data bus 40 connects circuits 12, 14, 16, 18, 24, 26, 30, and 36 mutually, and a control bus 42 connects circuits 10-18, and 28 and 36 mutually.

[0016] Since the function and interaction of each circuit are not unique especially, the detailed explanation is omitted.

[0017] The function which is 1 communicating, and transmits and receives the image reproduced by the still video floppy 32 and the image read in the image scanner 24 is explained to a detail. In addition, the semantics of a command and a response is as follows.

[0018]

CSS:Command-Session StartRSSD:Response Session Start-PositiveCSE:Command Session-EndRSED:Response Session-End-PositiveCDPB:Command-Document-Page-

BoundaryRDPBP:Response-Document-Page-Boundary-PositiveCDCL:Command Document-Capability ListRDCLP:Response Document Capability List PositiveCDE:Command Document

EndRDEP:Response Document End Positive -- first The example of operation which can specify the image (scanner image) read by the playback image (SV image) or image scanner 24 from a floppy 32 per document is explained. Drawing 2 shows the operation flow chart of a receiving side.

[0019] In drawing 2 , it notifies to a receiving side that SV image is contained in the image which establishes a circuit with a communications partner by the communications control circuit 18 (S1), and a transmitting side is ready-for-sending ability about SV image, and is transmitted from these with the parameter NSC of the session initiation command CSS in the procedure of the session layer under transmission control procedures (S2). A receiving side checks that SV image is contained in the image to receive according to this command CSS, and tells the function (ability of SV image ready for receiving) of a self-opportunity to a transmitting side by the session initiation affirmation response RSSP (S3).

[0020] If SV image is contained in a communication link image and it checks that the communication link of SV image is possible both transmission-and-reception sides (S4, 5), a transmitting side attaches and sends out the parameter NSC which declares image size, a color space, and a coding method to the command CDCL sent for every document (S6). A receiving side checks the decryption approach of the image data which receives, and notifies the format set up by the self-opportunity to a transmitting side by Response RDCLP (S7).

[0021] The picture transmission conditions for every document are set up by the above. If the document which received is SV image (S8), processing after S9 will be performed, and if it is not SV image, usual reception of S13 will be performed. At the time of SV image, image data is received, receiving image data is decrypted according to (S9) and the format set up previously (S10), and a receiving image is recorded on the still video floppy 32 with the still video record regenerative apparatus 34 (S11). A circuit is cut after communication link termination (S12).

[0022] the case (S8) where it is not SV image -- usually -- a passage -- received data -- decoding -- a printer 26 -- a printout -- it carries out.

[0023] Drawing 3 shows the operation flow chart of a receiving side of the example of operation which can specify SV image or a scanner image per page. Drawing 4 shows the communication link sequence over drawing 3 .

[0024] In drawing 3 , S21-S27 are the same as S1-S7 of drawing 2 . That is, a circuit is established, the communicability of SV image is checked and a format of SV image is notified to a receiving side from a transmitting side (S21-S7). Here, a receiving side transmits to the page layout descriptor further including information, such as image size, a color space, and the decryption approach, as detailed information of an image which transmits after the notice of the communication link initiation by Command CDS (S29) and after this (S29). A receiving side checks the decode approach in every page by this detailed information.

[0025] Henceforth it is the same as that of the case of drawing 2 , if the received page is SV image (S30), processing after S31 will be performed, and if it is not SV image, usual reception of S35 will be performed. At the time of SV image, image data is received (S31), receiving image data is decrypted according to the format set up previously (S32), and a receiving image is recorded on the still video floppy 32 with the still video record regenerative apparatus 34 (S33). A circuit is cut after communication link termination (S34).

[0026] the case (S30) where it is not SV image -- usually -- a passage -- received data -- decoding -- a printer 26 -- a printout -- it carries out.

[0027] Thus, within 1 communication link, SV image and a scanner image are continued per page, and can be transmitted and received.

[0028] Although the example possessing the image recording regenerative apparatus with which a transmitting side and a receiving side use a still video floppy as an image recording medium was explained, this invention is not limited to the example possessing an image recording regenerative apparatus with a transmitting side and a receiving side not necessarily of the same kind. For example,

you may be the configuration that a transmitting side or a receiving side possesses the record regenerative apparatus of a still video floppy, and another side, a receiving side, or a transmitting side possesses a write-in reader or record regenerative apparatus, such as a magneto-optic disk, a magnetic disk, a hard disk, and solid-state memory equipment. In short, this invention is premised on the facsimile which has the record regenerative apparatus or storage of an image which is [ modulation technique / resolution, ] different from a scanner image.

[0029] Moreover, in this example, although the still video floppy was used as the image source, you may be another image source but not only this.

[0030] In addition, this invention is applicable also to mixed mode transmission which can mix and transmit a text and a graphic form to G3 and the G4 facsimile list which have the function in which the video image of for example, television specification can be transmitted.

[0031]

[Effect of the Invention] According to this invention, two or more sorts of images with which the image sources differ can be transmitted now and received within 1 communication link so that he can understand easily from the above explanation.

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[Translation done.]